



# ND Department of Emergency Services

**DESAC Meeting  
February 17, 2012**

***Amy Anton, Operations and Planning Chief***

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Date: 28MAR10  
TOT: 1348Z  
Location: hallock, nd  
Latitude: N 48° 27.73' / Longitude: W 097° 07.30'  
Object: hallock bridge



A wide-angle photograph of a flooded landscape. The foreground and middle ground are covered in water, reflecting the sky. A road with white lane markings is visible, receding into the distance. The horizon is flat, with some distant trees and structures. The sky is filled with large, white, fluffy clouds, with some blue visible between them. The overall tone is somewhat somber due to the overcast sky.

# ***Flood Highlights***

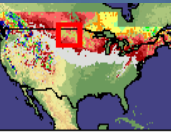
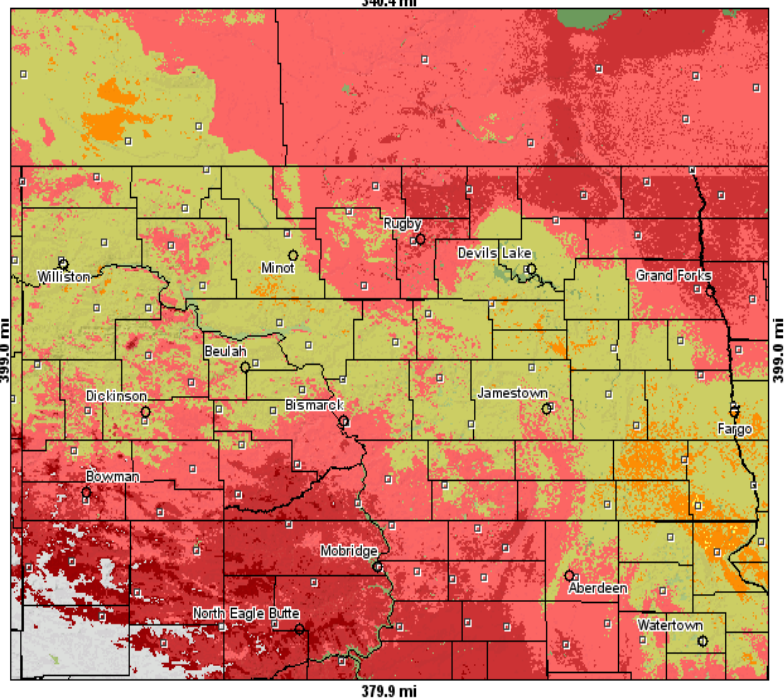
# Setting the Stage

- Very wet conditions in the summer and fall of 2010
- State entered winter with full sloughs and waterways and saturated ground.
- A cool and wet early winter produced a substantive snowpack across much of North Dakota.
- Some areas of the state reached near record snowfall.
- Excessive and residual rainfall in 2010, coupled with excessive winter snow to date and prospects for below normal temperatures and above normal precipitation will likely result in moderate to major flooding for many area lakes and rivers.

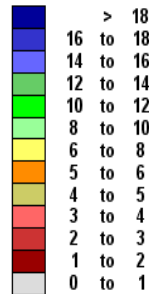


# January 20, 2011

Modeled Snow Water Equivalent (Shallow-snow Legend, Hourly) forecasted for 2011 January 20, 0:00 Z [Experimental]



Inches of water equivalent



Not Estimated

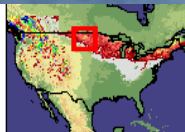
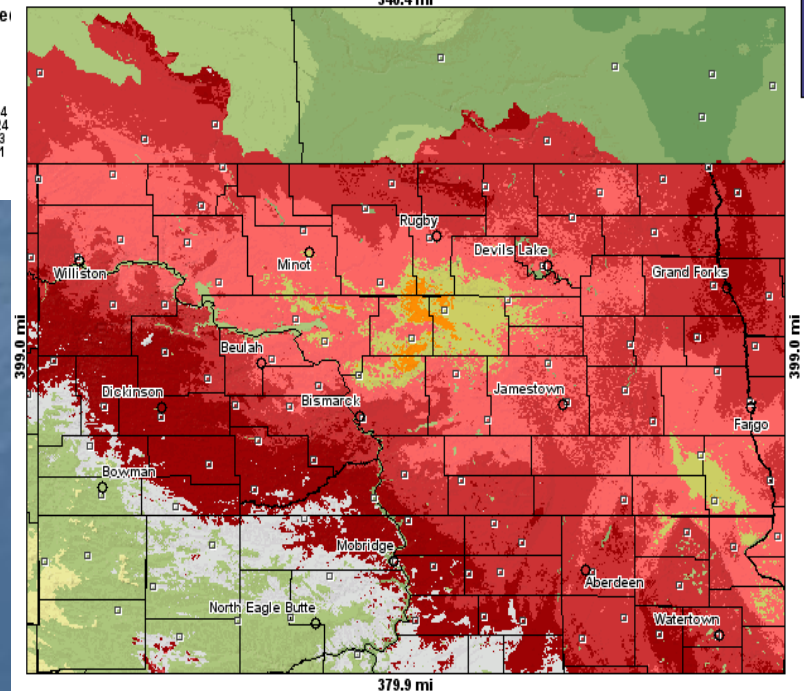
Elevation in feet (Not estimated)



# Snow Water Equivalent Comparison of 2009 and 2011

## January 20, 2009

Modeled Snow Water Equivalent (Shallow-snow Legend, Hourly) for 2009 January 20, 0:00 Z



Inches of water equivalent



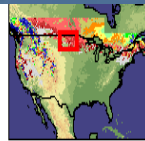
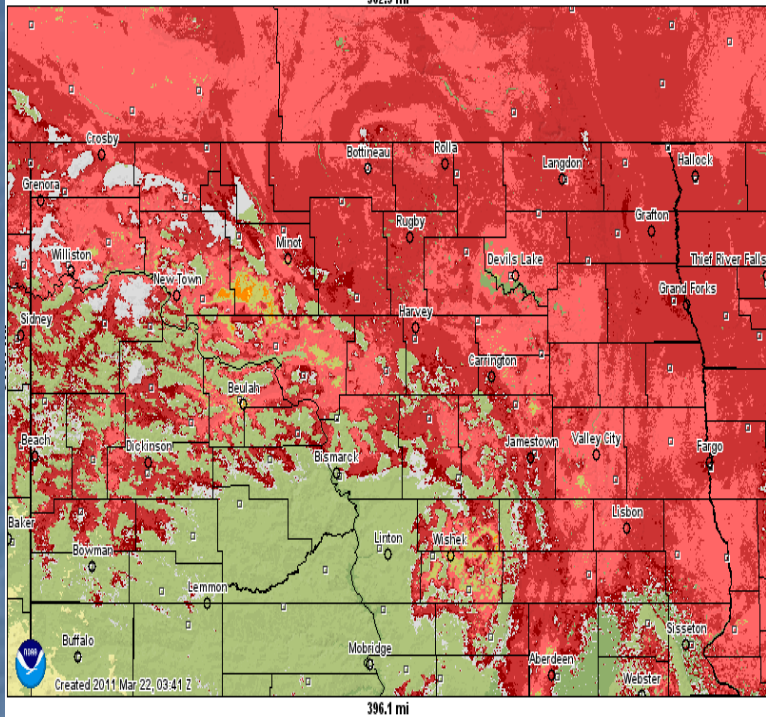
Not Estimated

Elevation in feet (Not estimated)

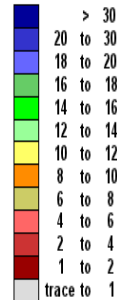


# March 21, 2011

Modeled Snow Water Equivalent for 2011 March 21, 21:00 Z  
362.9 mi

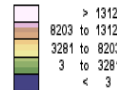


Inches of water equivalent



Not Estimated

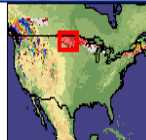
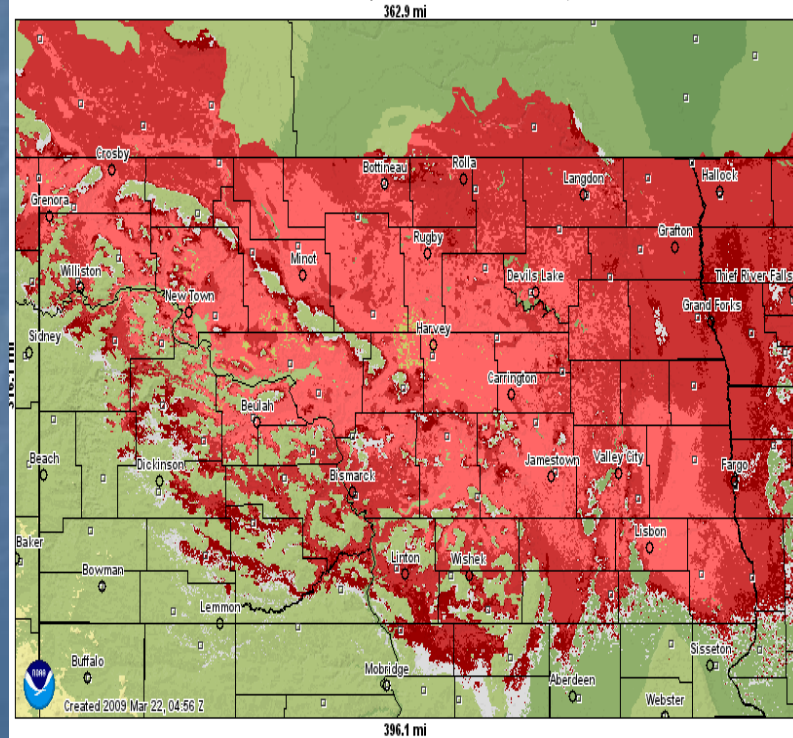
Elevation in feet



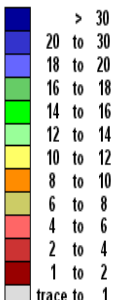
# Snow Water Equivalent Comparison of 2009 and 2011

## March 21, 2009

Modeled Snow Water Equivalent for 2009 March 22, 0:00 Z  
362.9 mi

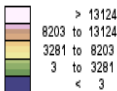


Inches of water equivalent



Not Estimated

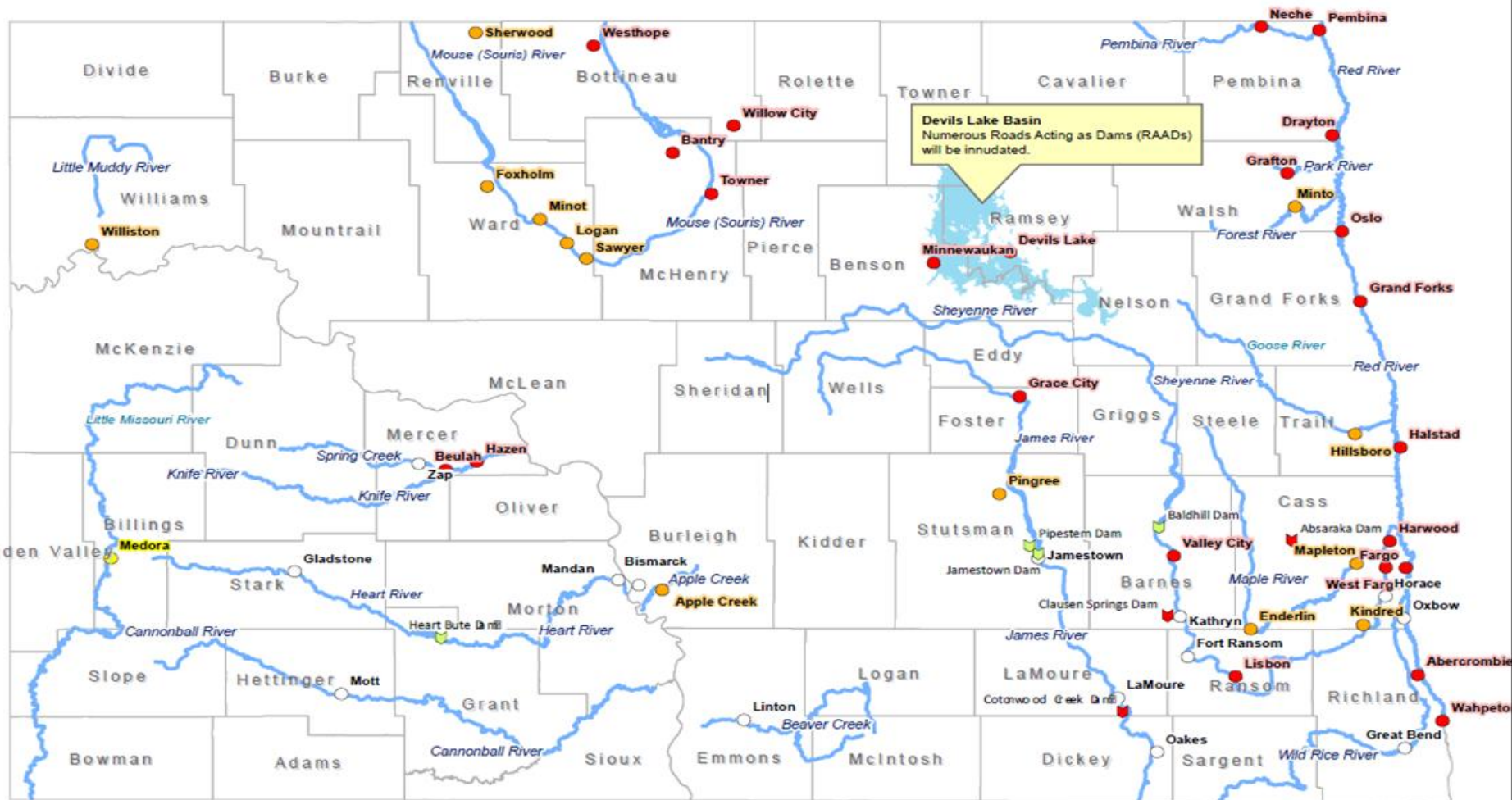
Elevation in feet



# Flood Outlook

- Spring Flood Outlooks issued by the National Weather Service (NWS) indicated a strong potential for major flooding this spring similar to events experienced in 2010, if not 2009.
- Local jurisdictions began implementing flood protective measures (i.e. levee construction, contracting of pumps, sandbag filling operations, etc)
- State agencies began flood preparedness activities (i.e. planning, resource inventorying, identification of potential impacts/resource needs, etc)

# Areas at Risk for Flooding



Areas at Risk for Flooding 7 March 2011



## Legend

### Dams at Risk

#### Status

- Dams needing to be monitored
- Dams previously damaged

### Cities at Risk

- Major
- Moderate
- Minor
- Areas of Concern

Rivers at Risk of Flooding

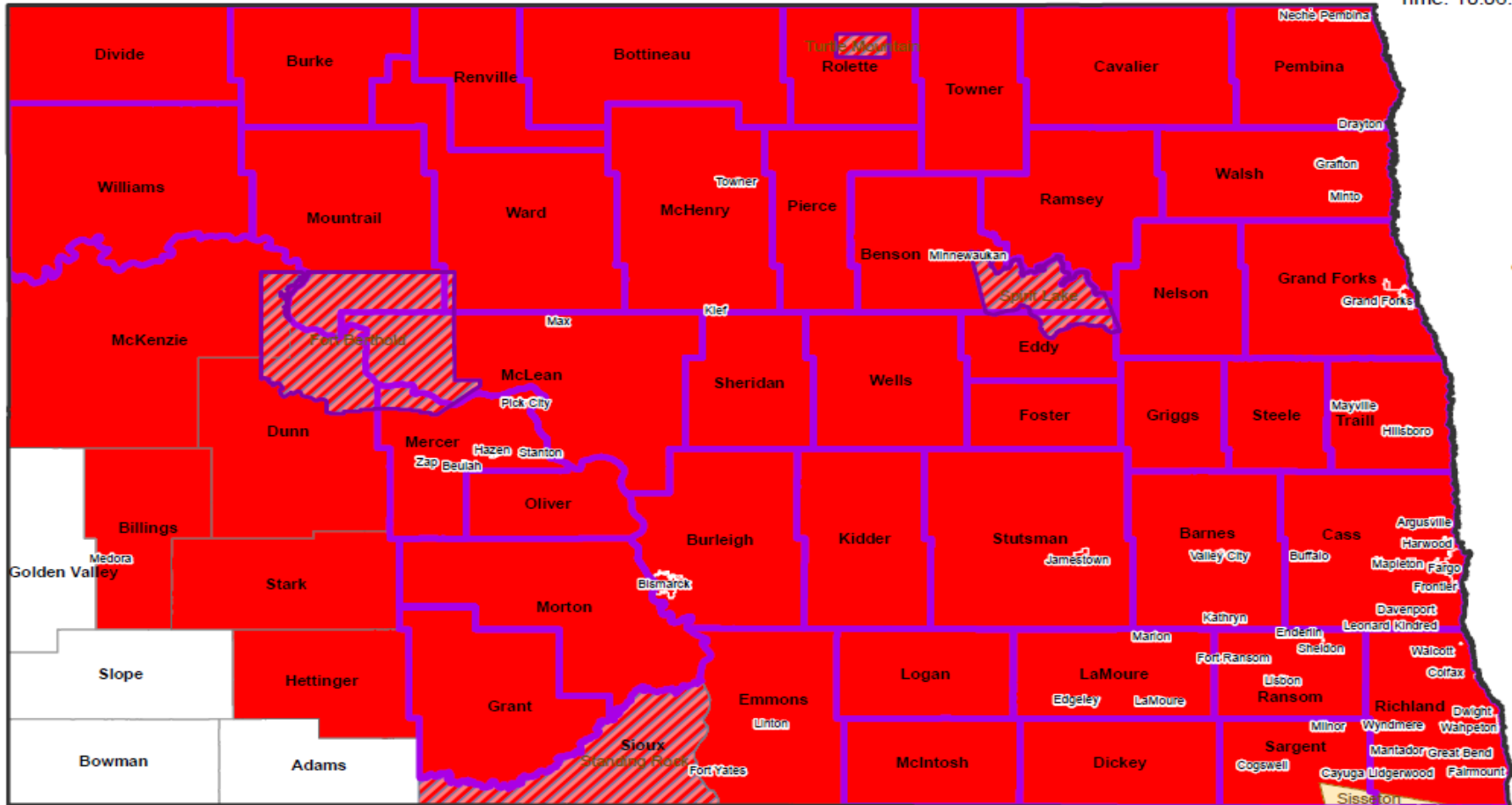


# Local Declarations

## Flood Declarations 2011

Date: 7/1/2011

Time: 10:06:21 AM



### Counties

Barnes  
Benson  
Bottineau  
Burleigh  
Cass  
Cavalier  
Dickey  
Divide  
Dunn  
Eddy  
Emmons  
Foster  
Grand Forks  
Grant  
Griggs

### Cities

Hettinger  
Kodder  
Lakota  
Logan  
McIntosh  
McHenry  
McLean  
McKenzie  
Mercer  
Morton  
Mountrail  
Nelson  
Oliver  
Pembina  
Pierce  
Ramsey

### Counties

Ransom  
Renville  
Richland  
Rolette  
Sargent  
Sheridan  
Stark  
Steele  
Stutsman  
Towner  
Walsh  
Ward  
Wells  
Williams

### Cities

Abercrombie  
Angusville  
Beulah  
Bismarck  
Buffalo  
Casselton  
Cayuga  
Christine  
Cognate  
Coffey  
Hillsboro  
Jamestown  
Kathryn

### Cities

Davenport  
Drayton  
Dwight  
Edgely  
Enderlin  
Farmington  
Fargo  
Fort Ransom  
Frontier  
Grandin  
Grafton  
Grand Forks  
Great Bend  
Hawwood  
Hazen

### Cities

Kief  
Kindred  
Lakota  
Leonard  
Lidgerwood  
Lincoln  
Lisbon  
Mapleton  
Mapleton  
Marion  
Max  
Mayville  
Minnekahta  
Minnewaukan

### Cities

Minto  
Neché  
North River  
Oxbow  
Pembina  
Pick City  
Relief Acres  
Sheldon  
Stanton  
Towner  
Valley City  
Wahpeton  
Walcott  
West Fargo  
Wynndare  
Zap

### Tribal Government

Spirit Lake  
Standing Rock  
Turtle Mountain  
Three Affiliated Tribes  
(Fort Berthold)  
State of North Dakota  
Devils Lake Basin  
State-wide flood emergency

### Legend



Federal Public Assistance Category B

### Flood



Flood Declaration



1:3,300,000

JST

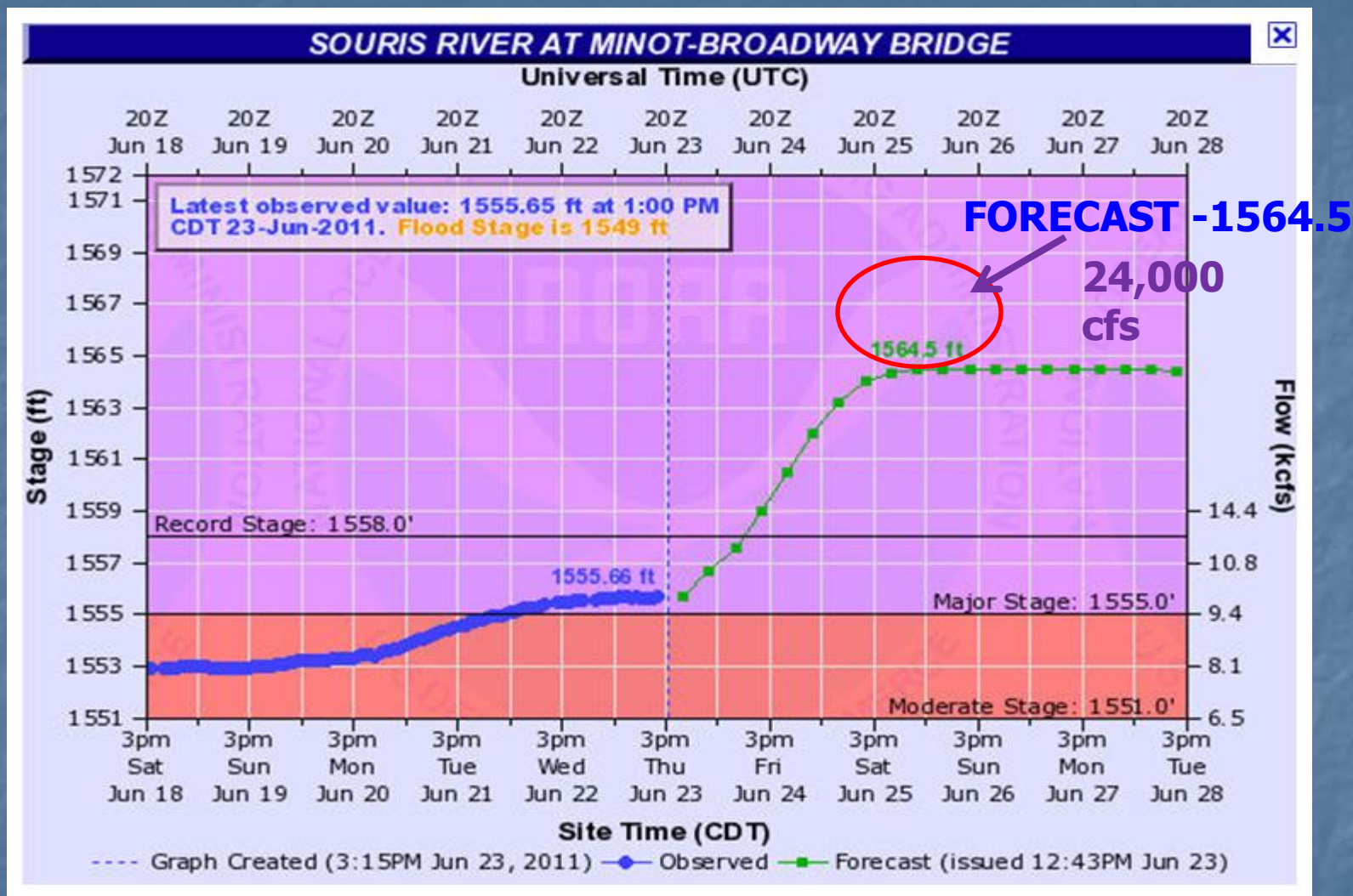
# Too Much Water For Too Long

- All corners of the state; all river basins
- 10 months of flooding
  - First report of flooding in Belcourt on February 14
  - Initial focus in March was eastern ND
  - Focus shifted to Missouri and Souris Rivers in May/June
  - Water levels dropped below flood pool elevation at Jamestown and Pipestem Dams in mid-November
- Fargo experienced 150 days above Flood Stage (*March 29 through August 27*)
- State EOC was activated for 181 days; 31 days at 24/7

# ***Another Record Setting Year***

**21 Records**

# Souris River @ Minot Broadway Bridge



**Crested at 1,561.66 ft  
June 25<sup>th</sup>**

**1969 – 1555.40 (+6.26 ft)  
1881 – 1558.00 (+3.66 ft)**

# Missouri River near Williston

- Crested at 30.53 ft on June 21
- Nearly 3 ft higher than previous record of 28 ft set in 1912
- Average June gauge stage at Williston is 18.45 feet.



# Garrison Dam

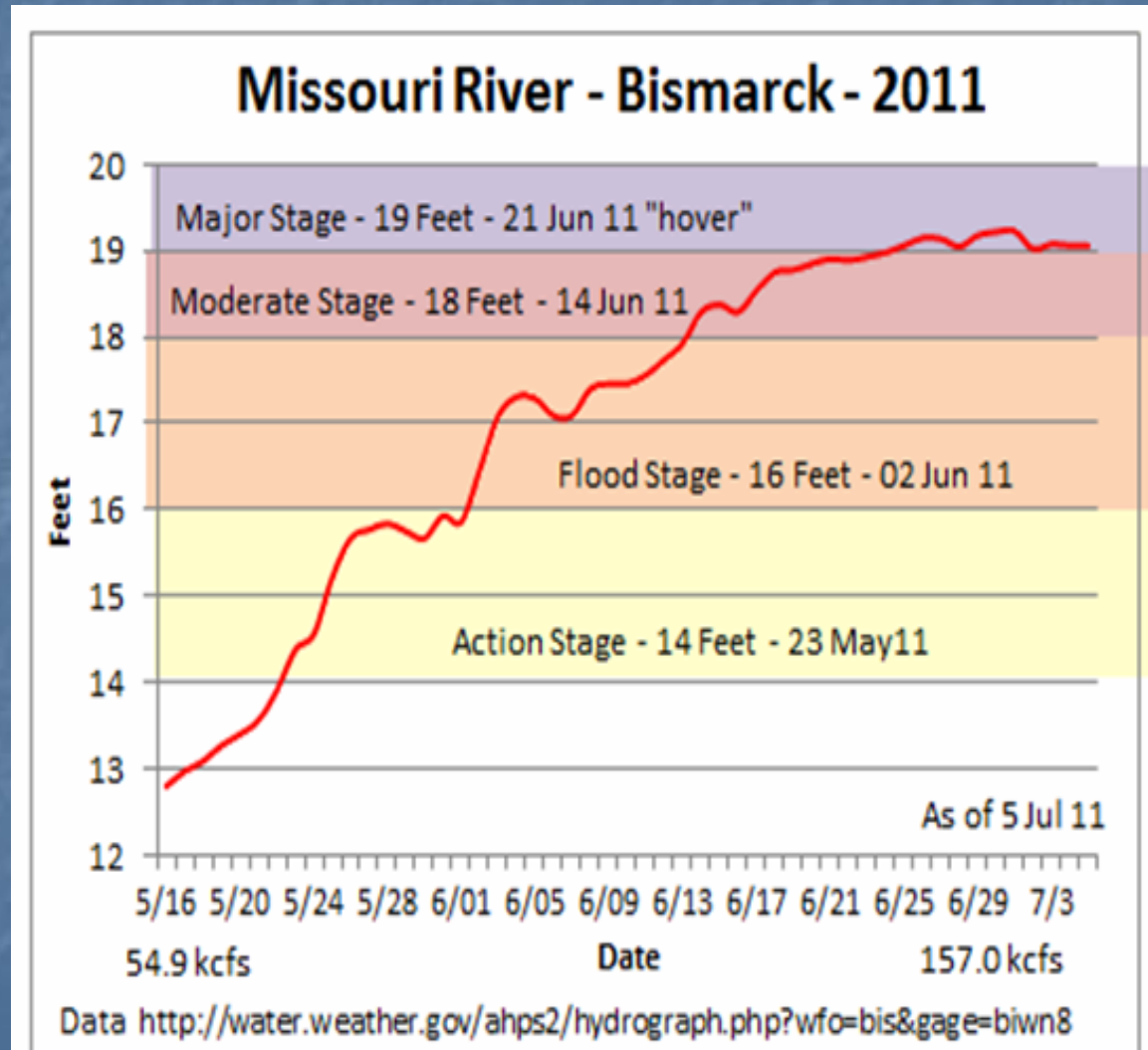
- USACE originally forecasted releases of 55,000 cfs the weekend of May 21-22
- Releases topped out at 150,000 cfs on June 17  
*More than double the previous record of 65,200 cfs set in 1975*



***Note: USACE opened Lake Sakakawea spillway gates on June 1 for the 1<sup>st</sup> time in history to release flood water***

# Bismarck/Mandan Crest

- Missouri River at Bismarck crested at record stage of 19.23 ft on July 1 (*provisional USGS data*)
  - The previous river stage record, post-dam, was 16.11 ft in the spring of 2009 as a result of an ice jam.



# Jamestown and Pipestem Dams

- Significant snowmelt runoff
- Persistent heavy rains in June/July
- Combined releases
  - 1,800 cfs releases began April 17
  - 2,400 cfs – September 2 through October 18 and then slowly decreased
  - *Flood control pool was evacuated on November 7 at Jamestown Dam and November 14 at Pipestem Dam*
- Record amount of water passed through Jamestown
  - The flow volume at the James River at Jamestown stream gage for 2011 was expected to be 830,000 acre feet.
  - *This is the highest flow volume on record at the gage exceeding:*
    - *520,000 acre feet in 2009*
    - *420,000 acre feet in 1997.*

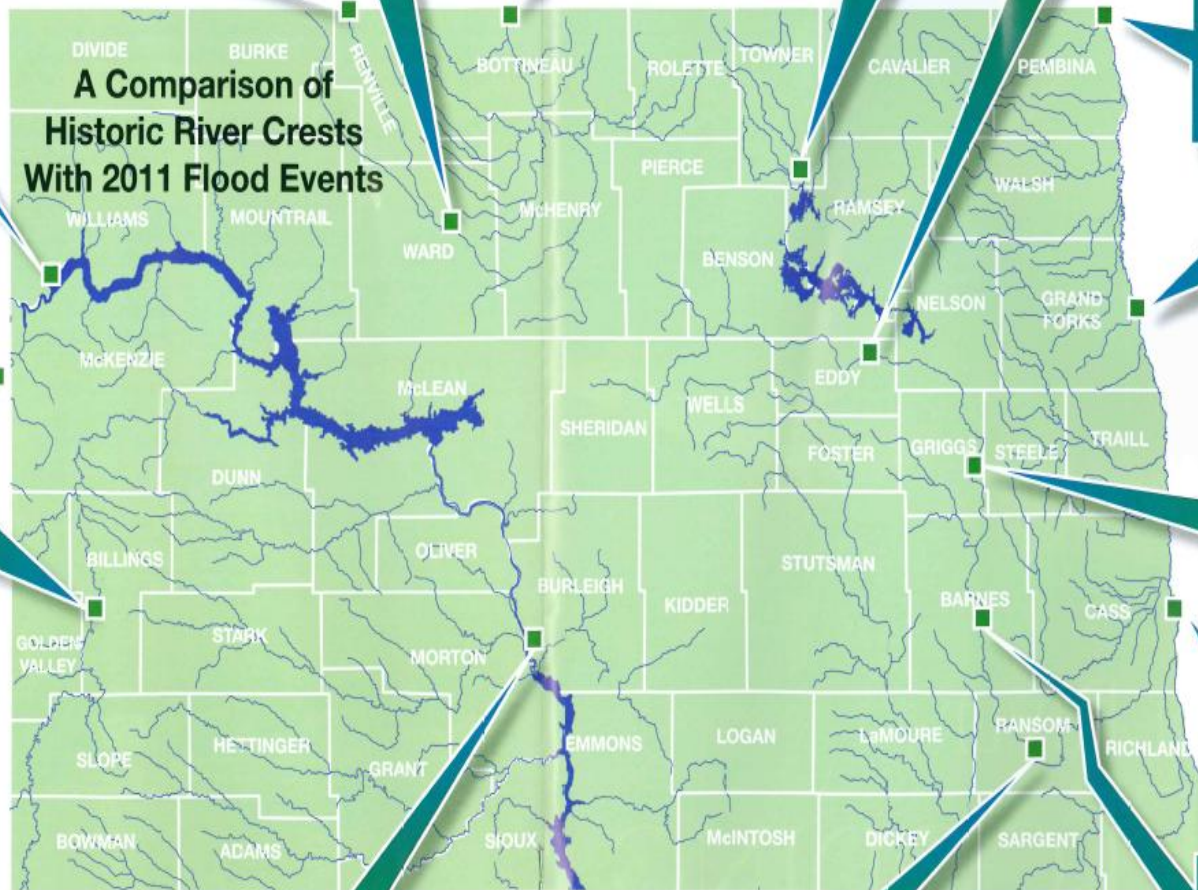


# Devils Lake Basin

- Froze Up in 2010 –  
1451.6 msl
- July 27, 2011 –  
1454.4 msl
- February 16, 2012 –  
1453.37 msl



## A Comparison of Historic River Crests With 2011 Flood Events



The purpose of this map is to provide a glimpse of the severity of the 2011 flood events in various river systems throughout the state. At every location depicted on the map, the top three historic crests are listed, along with the National Weather Service (NWS) established flood stage. For every location on the map, the 2011 peaks were at least in the top three. (Note that not every location in the state that experienced a top three historic crest in 2011 was depicted on the map.)

All of the data were provided through the United States Geological Survey's Water Watch website. Also note that all 2011 data are provisional and are subject to revision.

\*Gage height affected by backwater from ice.

\*\*NA means no specific date is available.

# Evacuations Orders Included

- Mouse River Park
- Sawyer
- Velva
- Burnt Creep Loop
- Southport Phase II
- Minot
- Rural subdivisions and areas in Ward County
- Schlosser's 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> Additions
- Seidler Addition
- Foxholm
- Tokach Timberhaven
- Whispering Bay
- Areas south of Washburn



- Logan
- Harbor Drive
- Whispering Point
- Rural areas of Burleigh County
- Glenwood Estates
- Sundown Estates
- River Place
- Georgianna Acres
- Fox Island
- Briardale
- Hogue Island
- Hidden Areas
- Jetty Beach
- Southport
- Carvell Estates


# Initial Unified Command

- ND Division of Homeland Security
- ND State Water Commission



***Later expanded to include additional agencies.***

# State/Federal Agencies in the SEOC

- 
- State Water Commission
  - Division of Homeland Security
  - Division of State Radio
  - Department of Transportation
  - NWS
  - USACE
  - Department of Human Services
  - Highway Patrol
  - Division of Animal Health
  - National Guard
  - Department of Health
  - FEMA
  - State/Fed Air/Marine Operations Branch

# State/Fed Air/Marine Operations Branch

- ND Dept of Emergency Services
- ND Civil Air Patrol
- ND National Guard
- ND Department of Transportation
- ND Game and Fish
- Federal Emergency Management Agency
- Federal Aviation Administration
- US Customs and Border Protection
- US Forest Service
- US Department of Defense
- US Coast Guard
- US Fish and Wildlife
- Local Mutual Aid
- Other State and Local Agencies

<b>Human Rescues:</b>	<b>16</b>
<b>Animal Rescues:</b>	<b>5</b>
<b>Imagery Sorties:</b>	<b>101</b>
<b>UAS Sorties:</b>	<b>8</b>
<b>Response Assistance:</b>	<b>73</b>



# Requests for Assistance

- Sandbags & Poly
- Sandbag Machines
- HESCO
- TrapBag
- Pumps & Hose
- Generators
- Boats/Air boats
- Traffic Control
- Commodities
- Sandbagging
- 1 Ton Sandbags
- Flatbeds
- NDDES Command Trailers
- NDDES Antenna Trailers



- Aerial Surveillance/Recon
- Forklifts
- Backhoes
- Dump Trucks
- Technical Assistance
- Levee and Dike Construction/Removal
- Search and Rescue
- Dike Patrol
- Personnel

***SEOC processed 679 requests for assistance.***

# Emergency Management Assistance Compact (EMAC)

- National Guard Soldiers and Equipment
- Aviation Resources (C130 to move TrapBags from Louisiana to Minot, ND)
- HESCO



*Louisiana and Minnesota*

# Federal Agencies

- FEMA
- Corps of Engineers
- Coast Guard
- Fish and Wildlife
- Forest Service
- Border Patrol
- Department of Defense
- Bureau of Alcohol, Tobacco, Firearms and Explosives
- Marshals Service
- Air Marshals
- Drug Enforcement Administration
- Tennessee Valley Authority
- Department of Health and Human Services
- Environmental Protection Agency
- USDA APHIS Veterinary Services
- Customs and Border Protection
- National Weather Service
- Department of Agriculture
- Federal Protective Services
- General Services Administration
- Occupational Safety & Health Administration

**FEMA – 475 personnel**

**Other Federal Agencies – 470 personnel**

# Challenges

- Statewide Impacts
  - Widespread
  - Every water basin/system was affected
  - Events occurred in rapid succession and/or simultaneously
- Multiple Crests
- Limited Resources
- Duration of Incident
- Staffing
- Road Closures
- Repeated significant precipitation events in flooded areas



# Challenges

- Unchartered Territory
- Significant bank erosion
- Scouring
- Concern for exposure of pipelines running under the Missouri River
- Creation of new river channels
- Formation of a delta south of Bismarck/Mandan



# ND FLOODS

*2011*



Bottineau County



Foster County



Bottineau County



Benson County



ND Hwy 22  
18 miles north of Killdeer  
(Dunn County)





Valley City (Barnes County)



Forman (Sargent County)



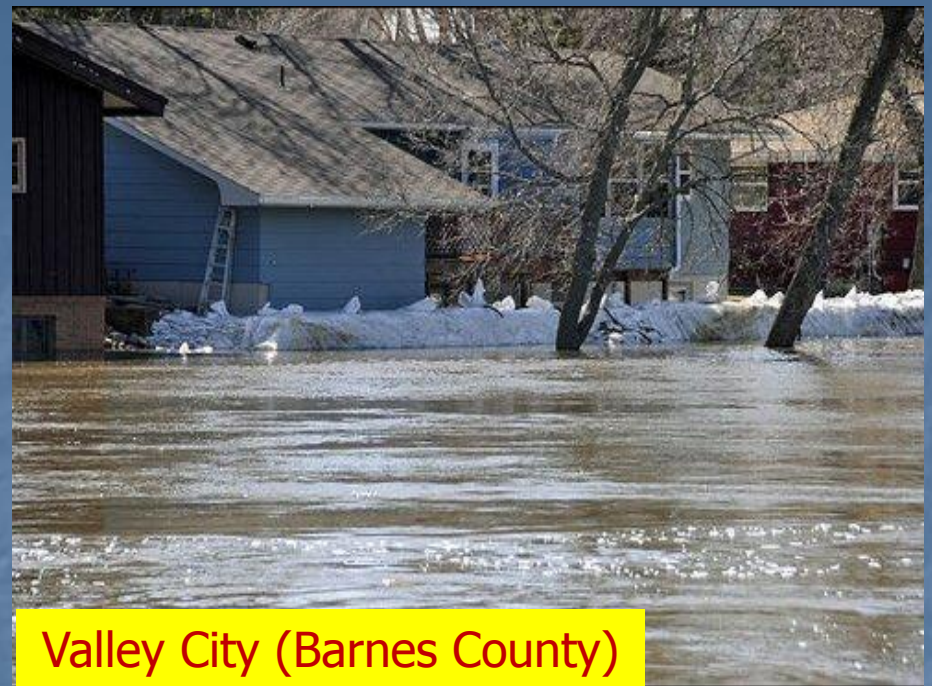
Ramsey County



McHenry County



Ward County



Valley City (Barnes County)



Cass County



Ward County



McHenry County



Below Baldhill Dam (Barnes County)



Forman (Sargent County)



Pembina County

I-29 near Argusville (Cass County)



I-29 near Harwood (Cass County)



West Fargo (Cass County)



Harwood (Cass County)





Valley City (Barnes County)



Near Horace (Cass County)

Sargent County



Pembina County

Fargo (Cass County)



Fargo (Cass County)



Overhead Imagery Taken  
During the Spring 2011 Flood



Color Imagery Taken in Summer of  
2010 of the Same Area



NW of Fargo (Cass County)

Overhead Imagery Taken  
During the Spring 2011 Flood



Color Imagery Taken in Summer of  
2010 of the Same Area

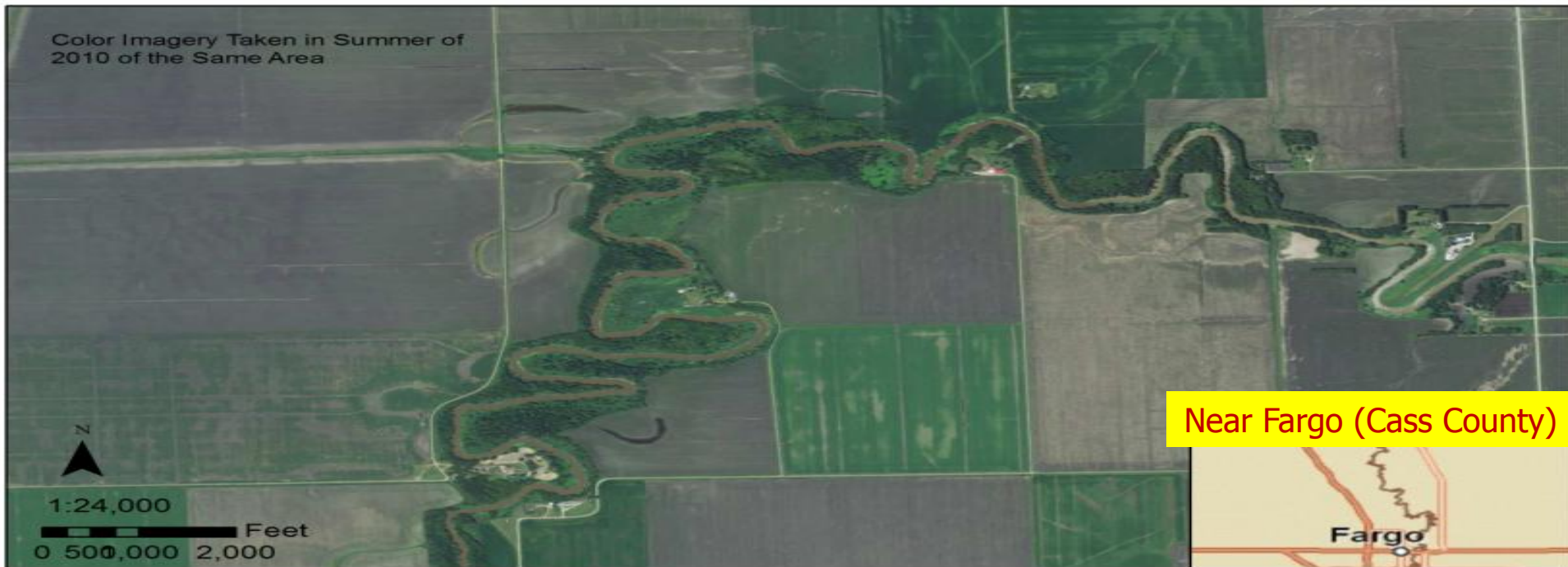


Overhead Imagery Taken  
During the Spring 2011 Flood

Interstate 94 Underwater



Color Imagery Taken in Summer of  
2010 of the Same Area



Near Fargo (Cass County)

Minnewaukan (Benson County)



Leeds (Benson County)



Devils Lake Area



Devils Lake (Ramsey County)



Minot (Ward County)



Jamestown (Stutsman County)



Williston (Williams County)



Bismarck/Mandan Area (Burleigh/Morton)

Hoge Island (Burleigh County)



Burlington (Ward County)



Forman (Sargent County)



Velva (McHenry County)

# Minot (Ward County)



June 22, 2011 @  
10:00 PM



June 23, 2011 @  
10:00 AM

# Mouse River, Ward County



June 2011

# Burlington (Ward County)



May 22, 2011



June 25, 2011

# FORT LINCOLN, ND

(LOOKING EAST)



TUESDAY, JUNE 14, 2011 (8:19AM)  
GAGE HEIGHT AT BISMARCK  $\approx$  18'



MONDAY, OCTOBER 3, 2011 (3:02PM)  
GAGE HEIGHT AT BISMARCK  $\approx$  6.5'

# 2011 Flood Video

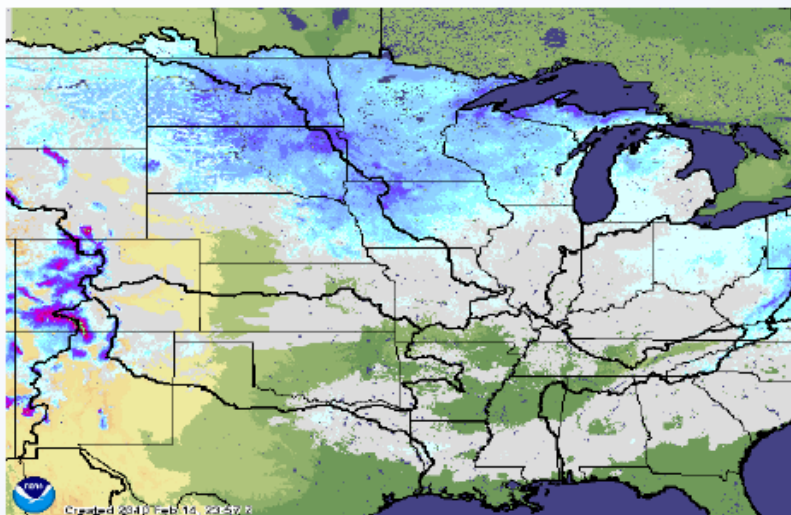
**BISMARCK-MANDAN  
SOURIS RIVER**



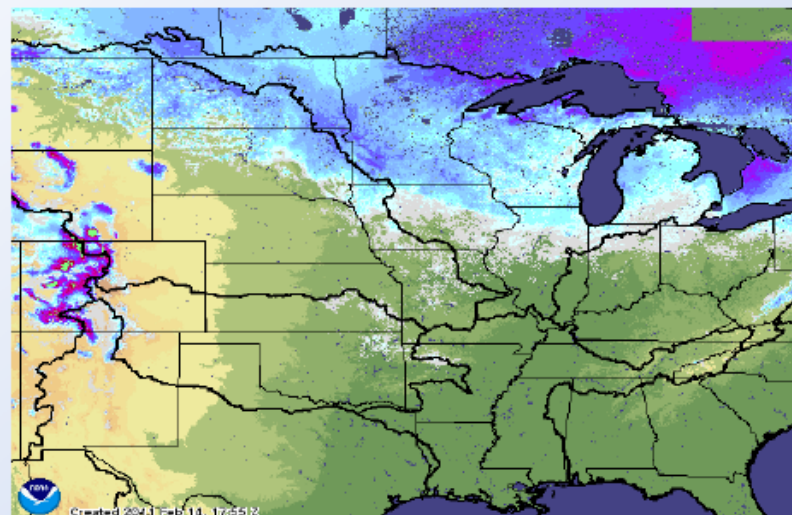
# 2012 Flood Outlook

# 3-Year SWE Comparison

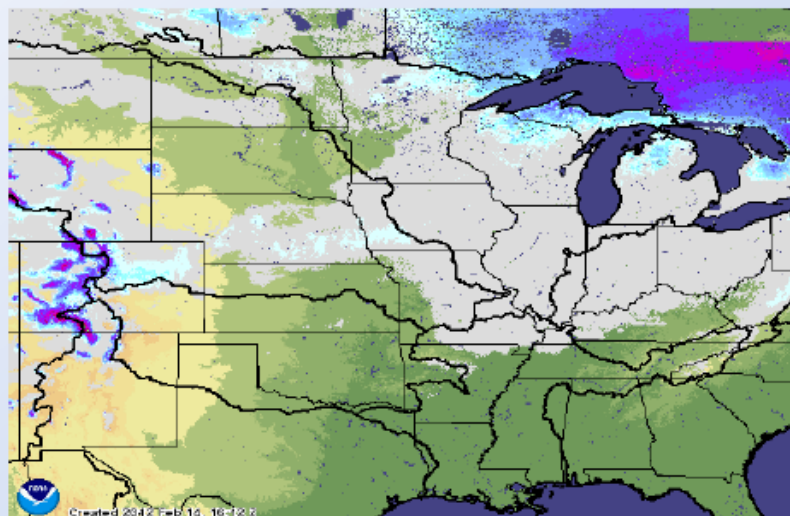
2010



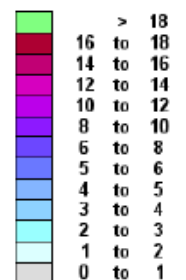
2011



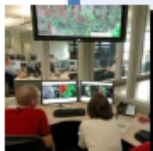
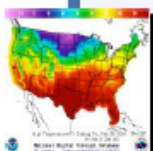
2012



Inches of water equivalent

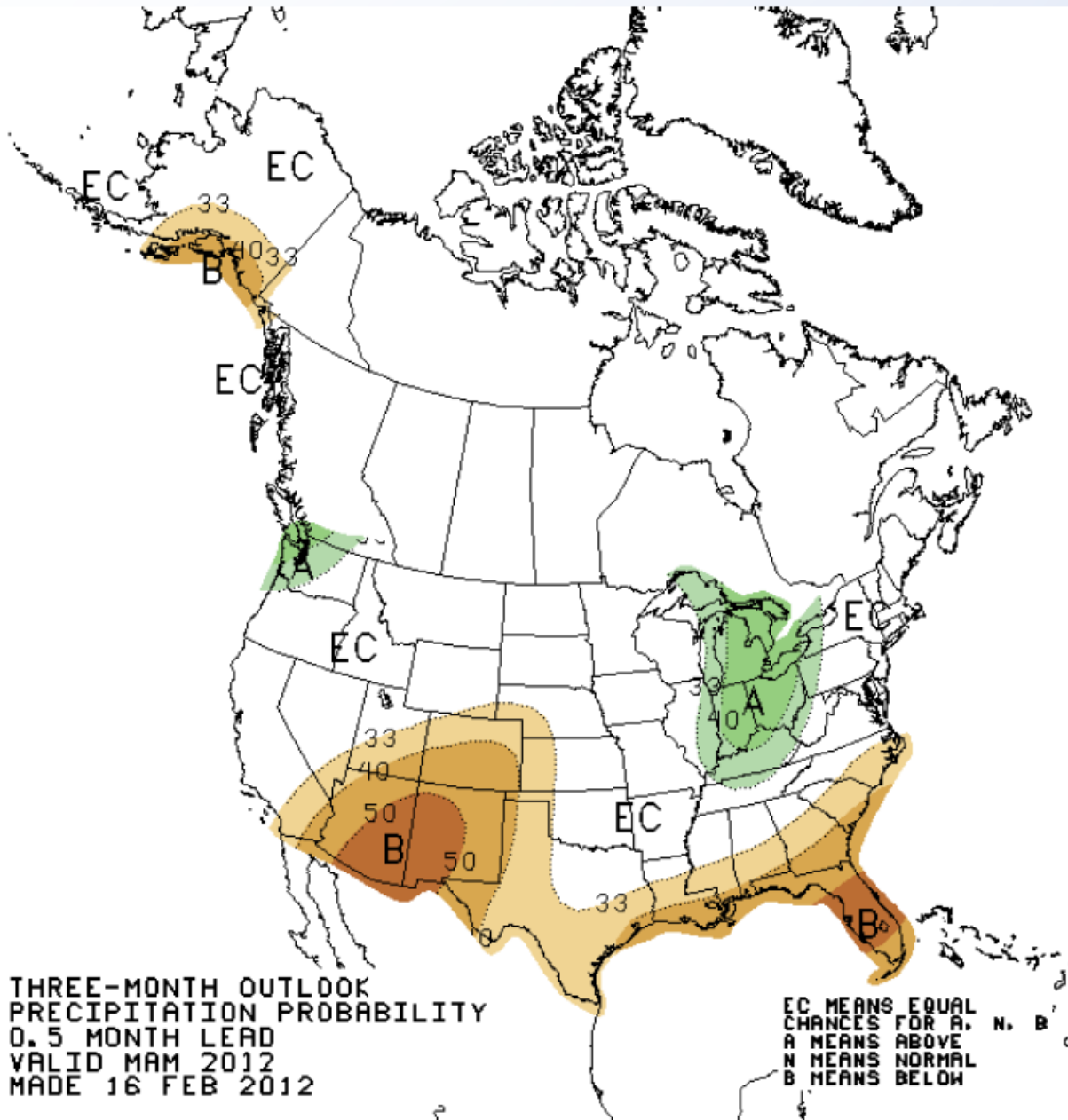


Not Estimated



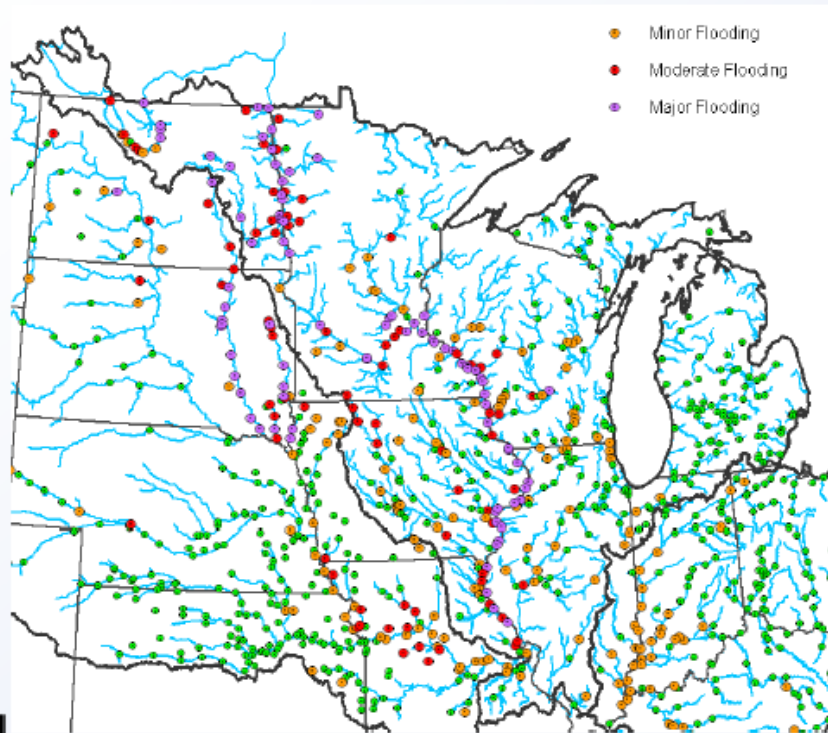
# March-May Precipitation Outlook

National Weather Service  
Protecting Lives and Property

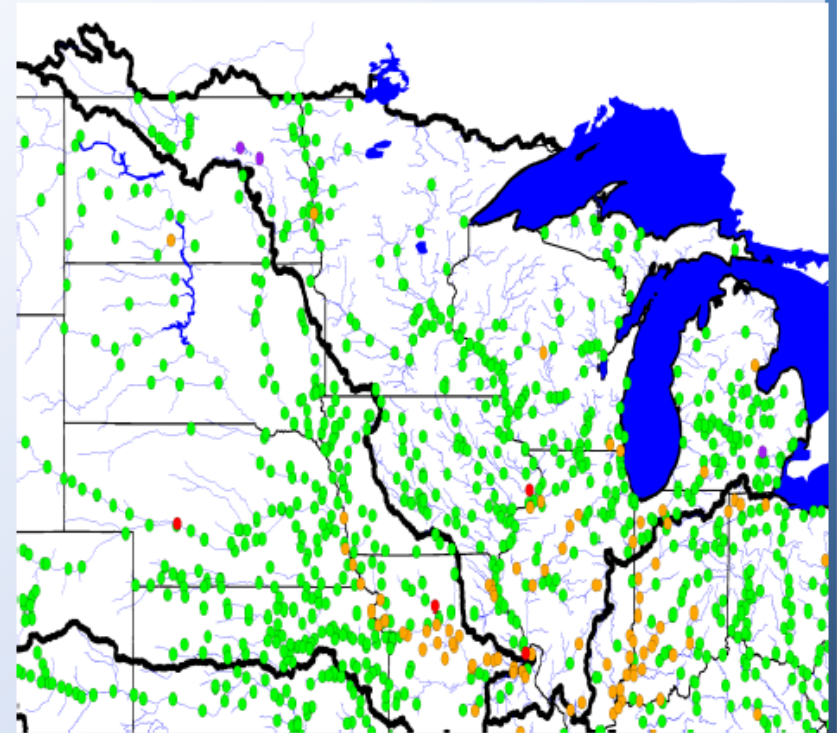


# Upper Mississippi and Red River of the North

50 Percent Chance Category 2011

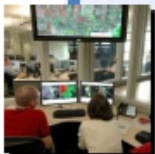
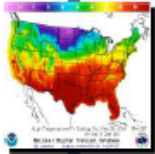


50 Percent Chance Category 2012



National Weather Service

Protecting Lives and Property



# 2012 Flood Outlook

- Current conditions indicate a markedly lower threat for significant spring riverine flooding than the previous 3 years
- Prairie potholes remain unusually full of water and result in a lack of natural storage
- Majority of flood risk will be due to spring rains and unpredictable ice jams
  - High water already at Bismarck and Williston
  - Likely due to changes in the river channel and its response

# **Flood Preparedness Activities**

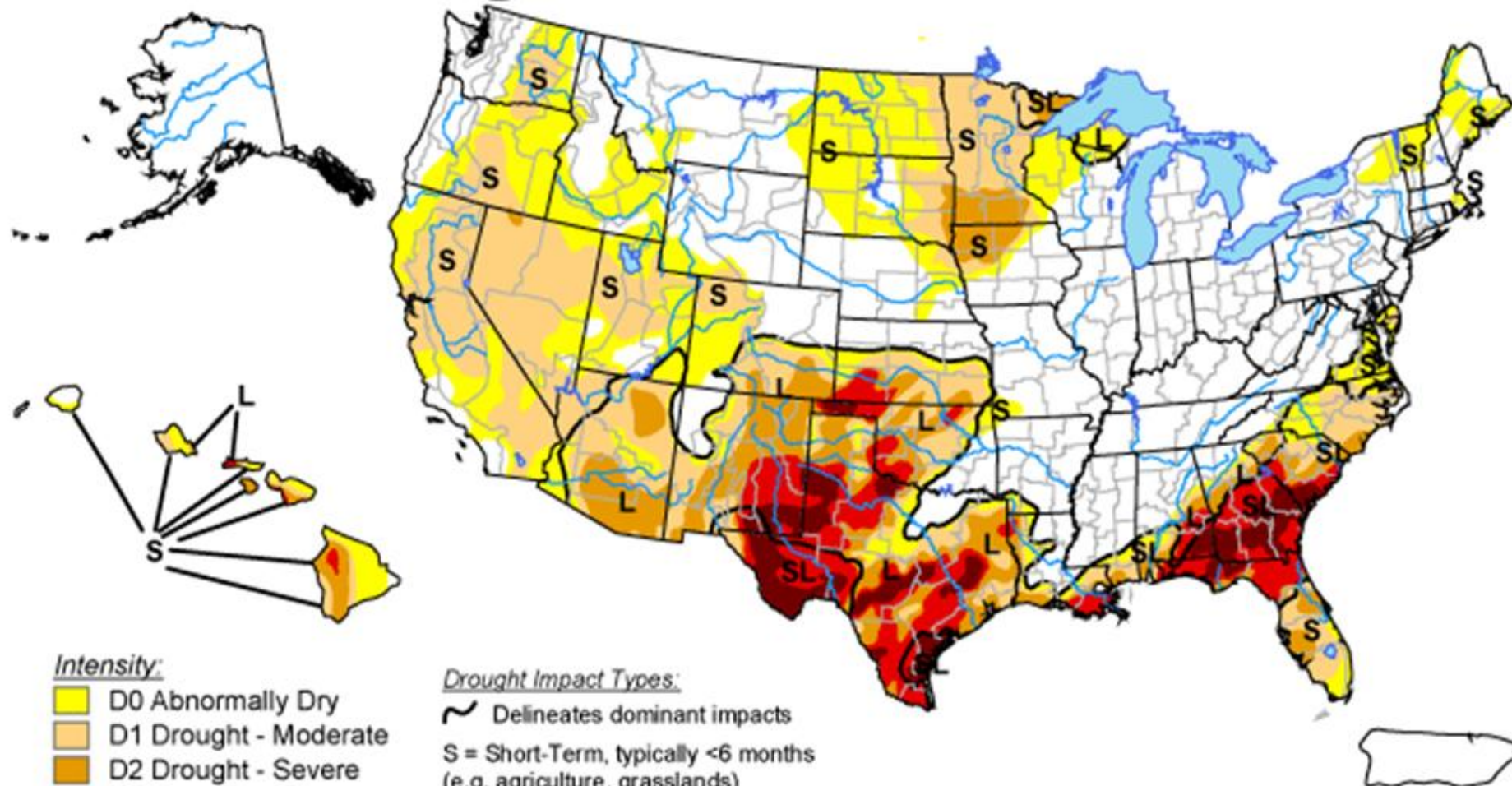
- Flood Response Alert Notification
- Addressing 2011 Flood After Action Items
- Information and Intelligence Unit
- Threat Assessment (NWS, SWC)
- State-Federal Summit
- Updating Resource Inventory Lists
- Updating Flood Risk Assessment Board
- Developed Ice Jam Overview Document

# 2012 Fire Outlook

# U.S. Drought Monitor

February 14, 2012

Valid 7 a.m. EST



## Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

## Drought Impact Types:

- ~ Delineates dominant impacts
- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu/>



Released Thursday, February 16, 2012

Author: Rich Tinker, NOAA/NWS/NCEP/CPC

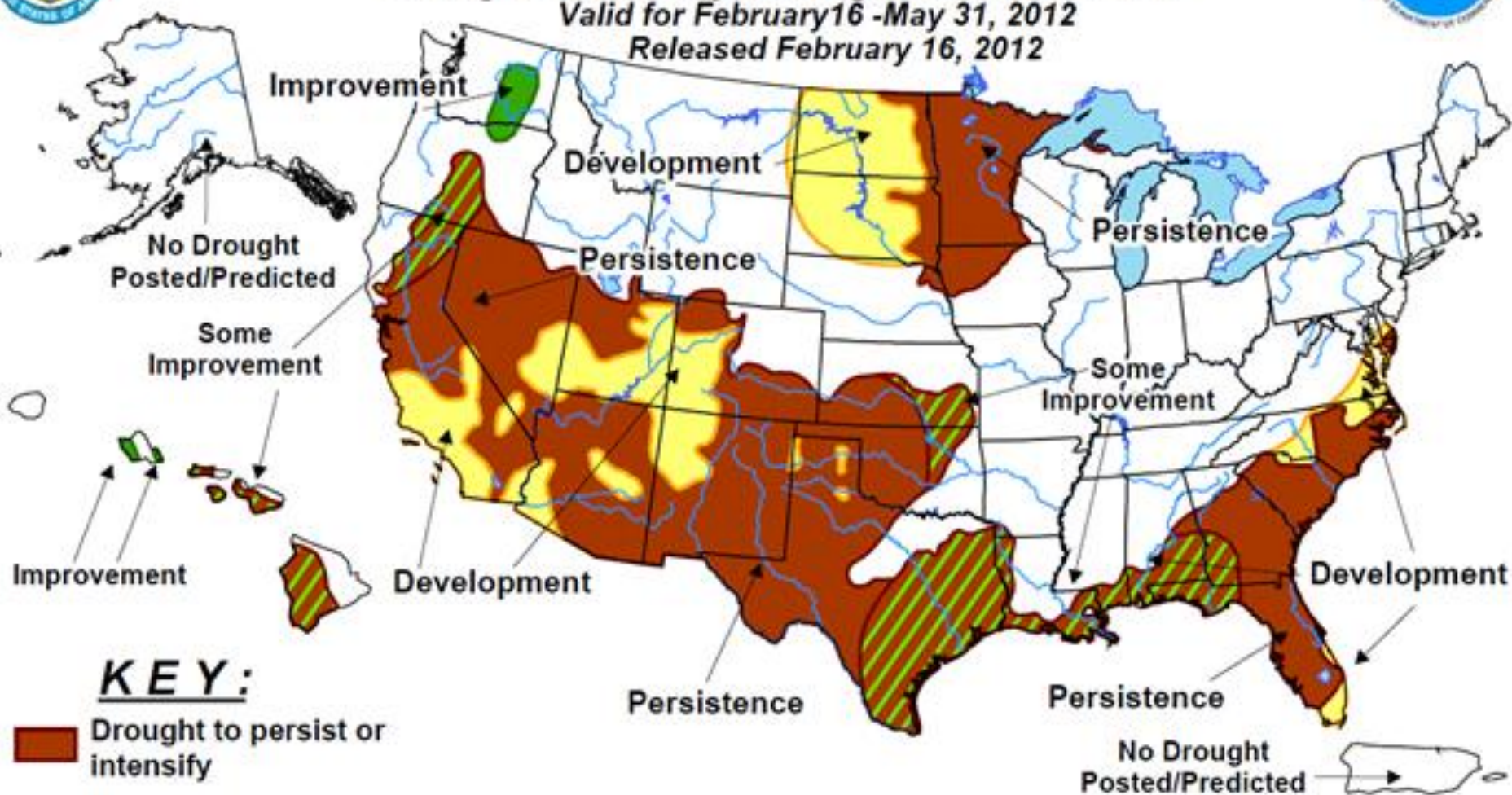


# U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for February 16 - May 31, 2012

Released February 16, 2012



## KEY:

-  Drought to persist or intensify
-  Drought ongoing, some improvement
-  Drought likely to improve, impacts ease
-  Drought development likely

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

# 2012 Fire Outlook

- Expecting an earlier fire season; mid-March *(typical fire season is mid-April)*
- Main concern is southwest ND
- Significant fuel loads
- Concern with downed timber due to 2011 flooding and windstorms
- Concern with fire start impacts in oil-field counties

# Fire Preparedness Activities

- Fire Response Alert Notification (*issued end of February*)
- Updating Fire Incident Annex
- Spring Fire Coordination Meeting (*March 6<sup>th</sup> – TENTATIVE*)
- Assessment of available ND fire resources

# NDDDES Warehouses

*Located in Bismarck*



**Heated Storage**



**Cold Storage**

# **ND DEPARTMENT OF EMERGENCY SERVICES**

## **RESOURCE HANDBOOK**



Director  
Dept. of Emergency Services  
MG David Sprynczynatyk

Director  
Homeland Security Division  
Greg Wilz

Director  
Division of State Radio  
Mike Lynk

# QUESTIONS

